**Lesson 2 Notes**

**Determining Densities**

**Volume:**

Volume is a measure of space taken up by some matter.

* The units, cubic centimeters or millimeters are used to measure volume.

1 ml = 1 cm3

* Volume can be measured in several ways:

1. By using a graduated cylinder to measure the volume of liquids
2. The exterior of regular solid objects can be measured by measuring the objects length (l), height (h), and width (w) in centimeters and then multiplying these together:

Volume of a block = l x h x w = volume in cm3

1. Volumes of irregular solids can be measured using the displacement of water. Displacement is what happens when one object takes the space that another object had occupied.

**Mass:**

Mass is the measure of the amount of matter in an object.

* Gram (g) is the unit of measure used for measuring mass
* Mass can be measured using a balance

**Density:**

Density is the mass of a known volume of a substance.

* Density is a characteristic property of matter that can be used to identify types of matter.
* A characteristic property is a property that is independent of mass, volume, and shape.
* Example: the iron in a nail, a bolt, and a ship’s hull has the same characteristic properties.
* Density is usually measured in g/cm3
* Density is independent of the quantity of a substance.

**Density = mass/volume**

The density of water is often used to compare other substances.

|  |  |
| --- | --- |
| **Substance** | **Density** |
| Air | .0013 g/cm3 |
| Water | 1 g/cm3 |
| Gold | 19.3 g/cm3 |

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* Density is ­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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